

CLAIMS

1. A method for filling deepened portions (28) of a sample carrier (26) with chemical and/or biological liquids wherein

a positioning step for positioning a liquid dispensing device (10) above a first deepened portion (28) is performed, the liquid dispensing device (10) comprising a liquid chamber (12) which, for generating the droplets (24), is subjected to an activating pulse (34) provided by a pulse generator (22),

in a liquid dispensing step, at least one series of droplets is produced, wherein in a series of droplets a plurality of droplets (24) are dispensed into the first deepened portion (28), and

plural repetitions are performed of the positioning step for positioning the liquid dispensing device (10) above further deepened portions (28) as well as of the liquid dispensing step for dispensing a plurality of droplets (24) in at least one series of droplets into this deepened portion (28),

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a damping pulse (38,46) generated by the pulse generator (22) at the end of the series of droplets for damping the postoscillation of the liquid dispensing device (10).

2. The method according to claim 1 wherein, at the beginning of the liquid dispensing step, a prepulse (40) of a higher amplitude than that of the activating pulse (34) is generated by the pulse generator (22) prior to the first activating pulse (34).

3. A method for filling deepened portions (28) of a sample carrier (26) with chemical and/or biological liquids wherein

a positioning step for positioning a liquid dispensing device (10) above a first deepened portion (28) is performed, the liquid dispensing device (10) comprising a liquid chamber (12) which, for generating the droplets (24), is subjected to an activating pulse (34) provided by a pulse generator (22),

in a liquid dispensing step, at least one series of droplets is produced, wherein in a series of droplets a plurality of droplets (24) are dispensed into the first deepened portion (28), and

plural repetitions are performed of the positioning step for positioning the liquid dispensing device (10) above further deepened portions (28) as well as of the liquid dispensing step for dispensing a plurality of droplets (24) in at least one series of droplets into this deepened portion (28),

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a prepulse (40) generated by the pulse generator (22) at the start of the series of droplets and transmitted prior to the first activating pulse, the amplitude of the prepulse (40) being larger than that of the activating pulse (34).

4. The method according to claim 3 wherein, at the end of the liquid dispensing step, a damping pulse (38,46) is generated by the pulse generator (22) for damping the postoscillation of the liquid dispensing device (10).

5. The method according to claim 1, 2 or 4 wherein, in operation at resonant frequency, the damping pulse (46) is generated by phase reversal of the activating pulse.
6. The method according to claim 1, 2, 4 or 5 wherein the damping pulse (46) is generated substantially after the dispensing of the last droplet (24) dispensed for filling.
7. The method according to claim 1, 2, 4, 5 or 6 wherein the damping pulse (46) substantially counteracts the preset oscillation of the liquid dispensing device.
8. The method according to claims 1, 2 or 4-7 wherein the amplitude of the damping pulse (46) is at least 20%, preferably at least 30% of the amplitude of the activating pulse (44).
9. The method according to claims 1, 2 or 4-8 wherein the duration of the damping pulse is longer, preferably by 3 to 15% and more preferably by 5 to 10%, than the duration of the activating pulse (44).
10. The method according to any one of claims 2-9 wherein the amplitude of the prepulse (40) is at least 20%, preferably at least 50% and more preferably 50 to 100% larger than of the amplitude (A) of the activating pulse (38).
11. The method according to any one of claims 2-10 wherein the prepulse (40) causes the first droplet to be dispensed.
12. The method according to any one of claims 1-11 wherein, for filling the deepened portion (28), at least 5, preferably at least 10 and more preferably at least 20 droplets are dispensed.

13. The method according to any one of claims 1-12 wherein the liquid dispensing device (10) is operated at resonant frequency.
14. The method according to any one of claims 1-13 wherein the dispensing of liquid is performed via a capillary chamber (18) provided in the liquid dispensing device (10) and connected to the liquid chamber (12).